Zurich University
of Applied Sciences

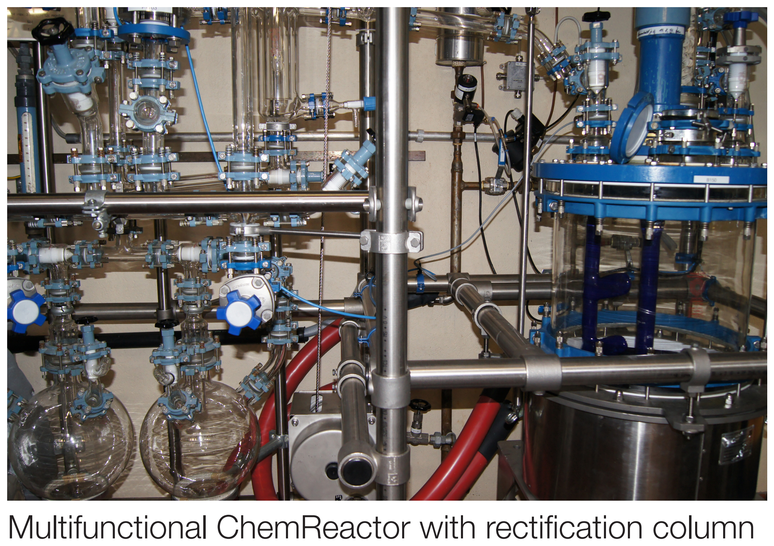
School of Engineering

IMPE Institute of Materials
and Process Engineering

Process Engineering

Process development and optimization

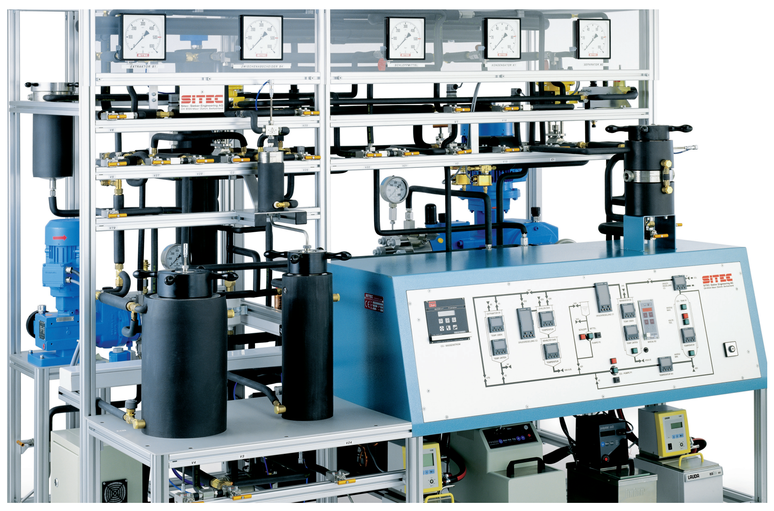
- Thermal, chemical and mechanical separation processes
- Particle production and encapsulation
- Reaction engineering
- Scale-up and process intensification
- Recycling and product work-up
- Catalytic processes and catalyst development
- Materials and processes for energy conversion and environmental technology
- Fuel and gas/flue gas treatment
- Water and waste water treatment



Multifunctional ChemReactor with rectification column

Pilot Plants and Analytics

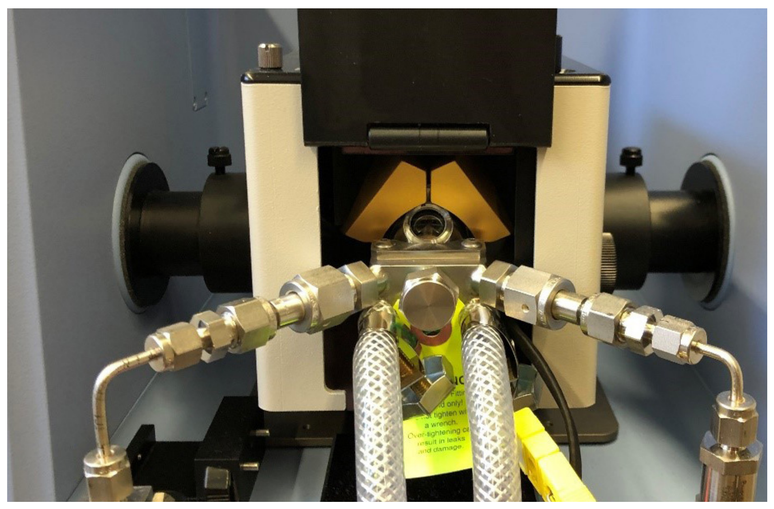
- Multifunctional ChemReactor (up to 50 litres)
- Rectification and evaporation (up to 250 litres)
- Membrane and mechanical separation plants
- Pilot plant for supercritical CO_2 extraction
- Thermal and Pressure Swing Adsorption
- Ex-protected premises
- Chemi- and physisorption (TPO, TPR, TPD, BET)
- Process analytics: Online, inline (IR, Raman, MS, GC)



Pilot plant for extraction with supercritical CO_2

Applications

- Powder synthesis in the range of 2 µm - 2 mm
- Separation of microparticles
- Extraction of natural products
- Heterogeneous catalysis
- CO_2-Capture
- Power-to-X and renewable energy sources
- Reaction kinetics with FT-IR modulation spectroscopy
- Solid Oxide Fuel Cells (SOFC)
- Desulfurization of process gas for fuel cells
- Optimization of galvanic processes



Process analytics with modulation spectroscopy (DRIFTS)

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2020.01